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South African Breweries sets Norit Haffmans' Bottle Monitor as the standard



South African Breweries (SAB) announced the approval of the Norit Haffmans' Bottle Monitor (BMT) in their standard procedures. "When we approached SAB Ltd., with our local representative Eureka Scientific, two years ago to introduce the BTM, we were convinced that our product would definitely make a difference and change the way of assuring the quality in the packaging environment at SAB," says Emmanuel Rurema, senior Product/Area Manager at Norit Haffmans responsible for Africa. SAB decided to test the BTM capabilities to monitor the bottle washer performance at Newlands Brewery by using the DMAIC process (Define, Measure, Analyze, Improve, Control), which is an in-depth systematic approach to solve problems and eliminate recurring problems.

CO₂ injection for pH correction at a SWRO desalination plant! CO₂ for potable water

Carbon Dioxide (CO₂) has many applications, including in various beverage industries where it is used to carbonate beer, soft drinks and mineral water. There is, however, another application where Norit Haffmans can add its CO₂ expertise.

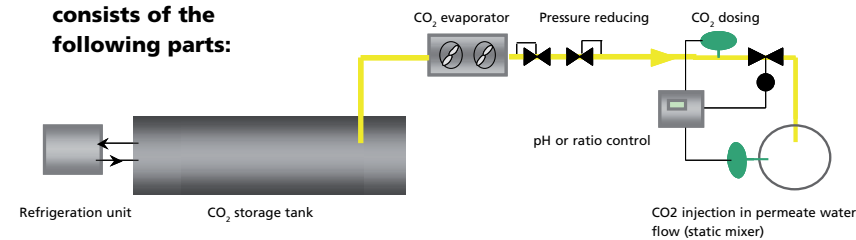
Norit Haffmans is currently working on a project for the King Abdullah University of Science and Technology (K.A.U.S.T) in Saudi Arabia. The students and local residents living on the campus will source potable water from a newly built 40,000 m³/d desalination plant, which uses a reverse osmosis process to turn seawater into potable water.

Changes in this process have created a need for the application of CO₂ as part of the RO (membrane filtration) and re-mineralization processes. Traditionally, seawater desalination required the addition of mineral acids to the pre-treated seawater for scale control and to maintain performance prior to the water passing through the membranes. The application of mineral

acids generated CO₂, which, as a gas, passed through the membrane and lowered the pH of the produced permeate to pH 5.5-6.2.

Now, with the increased use of thin film composite membranes, which can operate across a wide pH range from pH 2-11, the application of acids has been phased out, and this has led to an increase of the permeate pH. The now neutral pH permeate can no longer dissolve the limestone (or hydrated lime of lime milk) required for the re-hardening of the potable water to meet WHO or in this case the SASO water qual-

A CO₂ injection unit consists of the following parts:



ity standards. The purpose of adding the CO₂ is to reduce the pH value and to allow the calcium (Ca⁺) ion to re-create some hardness and alkalinity as required by the WHO and SASO standards. This also reduces the corrosive and aggressive nature of the desalinated water received from the seawater RO Plant.

After the CO₂ and lime dosing, the RO water is re-mineralized, pH adjusted, and transferred to the disinfection unit. The water is then ready for consumption as potable water.

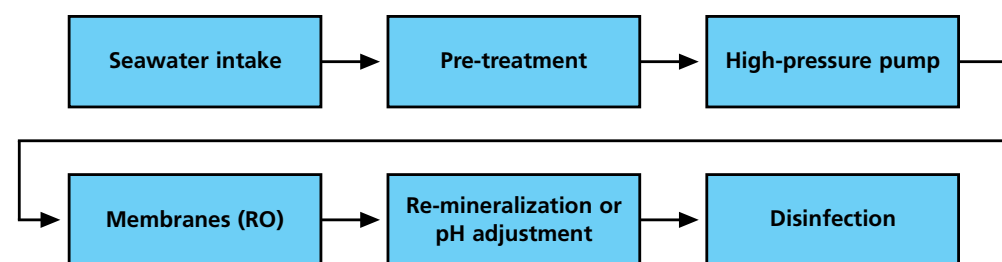
Every SWRO application requires additional treatments of the purified water (the permeate) to meet WHO or local water quality standards for potable water. By using CO₂ for water treatment:

- The pH value is reduced
- The calcium (Ca⁺) ion can re-create some hardness and alkalinity as required by the WHO and SASO standards
- The corrosive and aggressive nature of the desalinated water received from the seawater RO plant is reduced

As a result, the use of CO₂ for water treatment contributes to a sustainable future as it results in a lower impact on the environment and in cost savings for the customer.

Roy Spee

The general process steps of this seawater purification are:



At the end of the trial process the SAB Packaging Consultant and the QA Manager at Newlands Brewery revealed to us that the BTM is a user-friendly (easy to use and low maintenance), robust under rush operating conditions, very accurate, and a useful tool for trouble shooting in and around the bottle washing process.

Emmanuel Rurema